Common Buckthorn and Glossy Buckthorn

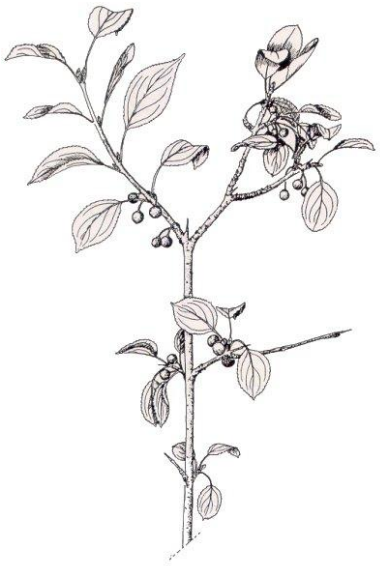
***Invasive Plants Found in Manitoba:* *Rhamnus cathartica* L. and *R. frangula* L.**
(syn. Frangula alnus Mill.)

European buckthorn (or **common buckthorn**) is an invasive species, which threatens native riverbank forests in Manitoba and in the City of Winnipeg by crowding out and replacing native vegetation. It was introduced into the City of Winnipeg in the late 1800's and continues to be planted in residential areas as an ornamental shrub or hedge. Once European Buckthorn is established, it is extremely difficult to eradicate.

BIOLOGY

Common buckthorn (*Rhamnus cathartica*) is a small, shrubby tree reaching 7.6 meters with a trunk diameter up to 25 cm. The bark is gray to brown with a rough texture. Its poisonous, small, black berries are often mistaken for wild black cherries. These berries are very bitter and cathartic, and usually cause severe stomach cramps if eaten. This non-native plant has become a weedy nuisance in woodlands and fence rows, competing with more desirable native trees and shrubs. It also serves as an alternate host for oat crown rust.

Converse (1984) described c**ommon buckthorn**. It is distinguished by the sharp, thorn-tipped branches, by the prominent forward-curved side of the leaves, the clusters of purplish-black berries along the stems and short twigs, and each berry usually with 4 hard seeds. Common buckthorn leaves are a dull green, ovate-elliptic and minutely serrate. Gray-black bark with prominent lenticels tipped with sharp stout thorns. Two to six greenish-yellow flowers having four petals born on axillary umbels. Natural reproduction is primarily sexual. Plants reach seed bearing age quickly and flowers bloom May through June. Globose black drupes of c**ommon buckthorn** ripen in August through September each containing three to four seeds.



Common Buckthorn. Source: Factsheet Ontario Ministry of Agriculture, Food and Rural Affairs. Available online: http://www.omafra.gov.on.ca/english/crops/facts/91-009.htm

Glossy buckthorn (also known as fen buckthorn, alder buckthorn) *Rhamnum frangula* invades wetlands, wet prairies, marshes, fens, sedge meadows, bogs and swamps (Converse 1984). **Glossy buckthorn** *(R. frangula)* is a tree or shrub that aggressively invades wetlands and moist woodlands. It reaches heights of up to 6.1 meters. No spine is present on the ends of hairy twigs. Leaves are alternately arranged and not toothed. The upper leaf surface is shiny, whereas, the bottom leaf surface is hairy. Leaves range from 1.3 to 7.6 cm and are more or less obtuse in shape. The fruit is red when young and turns black as it matures. Flower stalks are hairless or nearly so. Buds are long, with no bud scales. Leaves stay green late into fall. Buckthorns have long growing seasons, rapid growth rate, and resprout vigorously following top removal forming dense even-aged stands (Converse 1984).

ECOLOGICAL IMPACTS

When **common buckthorn** invades a natural area it displaces the native species by shading out native species. Frappier et al. (2003) also found that **glossy buckthorn** causes a decline in seedling density and alters native ground level plant species abundances. Large leaves and canopy shade native plants altering herbaceous understory composition (Converse 1984). Invasion is greatest in cut or grazed woods, along

woodland edges, in opening created by windfalls or deadstands of trees (Converse 1984).

The composition of upland deciduous woods and wetlands maybe altered by buckthorn invasions as a result of disturbances that create open habitat for invasion; the plants high seed production, dispersal and germination rates; large shading leaves; and the plants ability to vigoursly re-sprout after top removal (Converse 1984).

Common buckthorn is an alternate host for a fungus that causes oat rust (Soper and Heimburger 1982). Because it is an alternate host for the fungus which causes leaf and crown rust of oats, it must be destroyed to minimize this disease on oats. Crown rust (also call leaf rust) of oats requires European buckthorn for its alternate host. Spores are blown quite a distance from the barberry and buckthorn plants and can easily move from one farm to another. Stem rust and crown (leaf) rust cause significant yield losses and lowered grades of cereal grains. Losses are greatest when early season infections are caused by disease.

DISPERSAL MECHANISMS

Common buckthorn seeds are widely scattered by birds and other animals hence it is common along fence lines, woodlands, pastures and in abandoned farmyards. Converse (1984) reported seeds are dispersed by starlings, blackbirds, wood ducks, elk, mice, cedar waxwings, robins and blue jays. Pathways of invasion also include horticultural distribution of ornamentals (Converse 1984).

GEOGRAPHIC DISTRIBUTION

Glossy buckthorn and **common buckthorn** were introduced to North America from Eurasia as ornamental shrubs for fencerows and wildlife habitat and are still used in landscaping. They continue to become naturalized in many areas. In Canada, buckthorns are found in southern Ontario, east to Nova Scotia, and west to Saskatchewan (Soper and Heimburger 1982). In Ontario, it is found primarily south of the Canadian Shield. **Glossy buckthorn** is found in southern Ontario near larger cities but also occurs in Nova Scotia, Quebec, and Manitoba (Soper and Heimburger, 1982).

Distribution of Common Buckthorn (Canadian Wildlife Service). Solid circles represent individual or local occurrences. Map source Canadian Wildlife Service: http://www.cws-scf.ec.gc.ca/publications/inv/p7_e.cfm

MANAGEMENT

Management and control is labor intensive and costly. New shoots readily grow from cut stumps. Management has included cutting and chemically treating stumps in the fall. Tops are usually cut off manually and then stumps treated with a basal bark or stump herbicide treatment where permitted. Mowing or spraying of small plants has been successful to maintain control.

Converse (1984) reviewed the management of **common buckthorn**. Cultural controls have included cutting, mowing, girdling, excavation, burning, and underplanting. Repeated cutting can reduce plant vigor. Mowing maintains open areas by preventing seedling establishment. Girdling has been successful with **common buckthorn**. Burning has not been successful. Chemical control using Glyphosate, fosamine, Picloram and 2,4-D in diesel fuel has been successful.

Biological Control

North American insects do not feed on buckthorn. Malicky et al. (1970) has evaluated European insects for potential Canadian introduction. Because **common buckthorn** is ergonomically a worse invader, and is of less ornamental value than **glossy buckthorn**, further studies have been limited to **common buckthorn** pests including *Scotosia vetulata* Schiff. and *Triphos dubiata* L. (Malicky et al. 1970). Minnesota has initiated biological control research against **common buckthorn** reporting that dozens of insect species show potential (Minnesota Invasive Species Program 2006).

SPECIES INFORMATION LINKS

Converse, C.K. 1984. Element Stewardship Abstract for *Rhamnus cathartica, Rhamnus frangula* (syn. *Frangula alnus*) Buckthorns. The Nature Conservancy. Arlington, Virginia. 13 pp.

Frappier,B., Eckert, R.T. and T.D. Lee. 2003 Potential impacts of the invasive exotic shrub Rhamnus frangula (Glossy Buckthorn) on forests of southern New Hampshire. *Northeastern Naturalist* 10(3):277–296.

Malicky, H.; Sobhian, R.; Zwolfer, H. 1970. Investigations on the possibilities of a biological control of *Rhamnus cathartica* L. in Canada: Host ranges, feeding sites, and phenology of insects associated with European Rhamnaceae. Z. angew Ent. 65:77-97.

Minnesota Invasive Species Program. 2006. Invasive Species of Aquatic Plants and Wild Animals in Minnesota: Annual Report for 2005. Minnesota Department of Natural Resources, St. Paul, MN.

Soper, J.H. and M.L. Heimburger. 1982. *Shrubs of Ontario*. Royal Ontario Museum, Toronto, Ontario. 495 pp.

Wildland Invasive Species Program - The Nature Conservatory
http://tncweeds.ucdavis.edu/esadocs/franalnu.html

Invasive Plants of Natural Areas in Canada Canadian Wildlife Service - Environment Canada http://www.cws-scf.ec.gc.ca/publications/inv/p7_e.cfm

DCNR Invasive Exotic Plant Tutorial for Natural Lands Managers
http://www.dcnr.state.pa.us/forestry/invasivetutorial/common_glossy_buckthorn_M_C.htm

PICTURE GALLERIES

	**Organization: Trees of Wisconsin, University of Wisconsin** **Link: http://www.uwgb.edu/biodiversity/herbarium/trees/rhafra01.htm**
	**Organization: Alien Plant Working Group Fact Sheet** **Link: http://www.nps.gov/plants/alien/fact/rhca1.htm**

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